LBC-H/V-T-WP

LINK BRIDGE™ HDMI/VGA
WALL PLATE TRANSMITTER SYSTEM

BCI reserves the right to make changes to the products described herein without prior notice or consent. No liability is assumed as a result of their use or application. All rights reserved.

©2013 Broadata Communications, Inc.

SAFETY INSTRUCTIONS AND COMPLIANCE DECLARATIONS

PLEASE OBSERVE THE FOLLOWING SAFETY PRECAUTIONS

SURGE PROTECTION DEVICE RECOMMENDED

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

TABLE OF CONTENTS

1.0 PRODUCT DESCRIPTION 5
2.0 OPERATION CONTROLS AND FUNCTIONS 6
2.1 FRONT PANEL 6
2.2 REAR PANEL 7
3.0 SET UP 8
3.1 MOUNTING 8
3.2 CABLING AND CONNECTORS 8
3.3 VGA/YPBPR VIDEO INTERFACE 9
3.4 HDMI VIDEO INTERFACE 10
3.5 AUDIO INTERFACE 11
3.6 SERIAL DATA INTERFACE 12
3.7 CAT-5E/6 TRANSMISSION CONNECTION 13
4.0 DC POWER CONNECTION 14
4.1 IN-WALL POWER/CAT-5E/6 WIRING INSTRUCTION .. 15
5.0 MAINTENANCE AND TROUBLESHOOTING 18
5.1 MAINTENANCE 18
5.2 TROUBLESHOOTING 18
6.0 SPECIFICATIONS 20
7.0 SERVICE PROCEDURE 21
7.1 REPLACEMENT POLICY 21
7.2 RETURN AND REPAIR SERVICE 21
8.0 LIMITED WARRANTY 22

1.0 PRODUCT DESCRIPTION

The LBC-H/V-T-WP transmitter is a high performance, low cost, miniature, Link BridgeTM HDBaseT VGA/HDMI Transmission System that embeds the source audio into the VGA video signal. It carries one (1) unidirectional HDMI video or one VGA/YPbPr signal with one (1) unidirectional embedded stereo audio, and one (1) RS-232 data channel. This unique CAT 5e/6 transmission system lets your digital flat panel display extend up to 70m (230 ft) at 4K2K and WUXGA (1920x1200 @ 60Hz) or 720p/1080i/1080p HDTV video resolution.

LBC-H/V-T-WP is a 2 gang multi-input wall plate transmitter. When either the VGA or HDMI with active signal is connected, the signal will be sent to the compatible HDBaseT receiver automatically. The 'VGA/HDMI' button on the wall plate is available for manual signal selection if both VGA and HDMI with active signal inputs are connected at the same time. The Wall plate is also capable of being controlled via RS-232 commands sent by a local RS-232 connection or via a remote HDBaseT receiver. In addition, the LBC-H/V-T-WP supports PoH (Power over HDBaseT) where it can be powered by a remote Matrix, a compatible receiver or local DC adapter.

In addition, the LBC-H/V-T-WP transmitter is compatible with our LBH and LBC Series receivers. This makes both CAT 5e/6 transmission and HDMI/DVI/VGA/YPbPrI conversion in one single system setup. The units are easily monitored by power and link LED indicators. Figures 2-1, and 2-2 illustrate the front and rear panels of the LBC-H/V-T-WP unit.

2.0 OPERATION CONTROLS AND FUNCTIONS

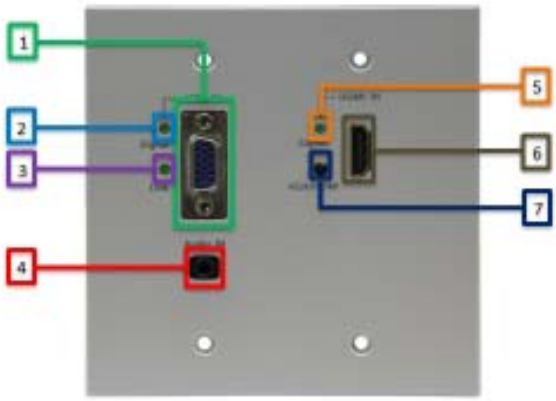

Figure 2-1
LBC-H/V-T-WP Front Panel

1. **VGA Input**: Connect to VGA source.
2. **LED for VGA**: LED blinking means there is VGA signal input; LED always on means current output is VGA.
3. **LINK LED for HDBT connection**: LED blinking means CAT-5e/6 cable connection available; LED always on means there is videosignal input and output.
4. **Analog Audio Input**: Connect to audio source.
5. **LED for HDMI**: LED blinking means there is HDMI signal input; LED always on means current output is HDMI.
6. **HDMI Input**: Connect to HDMI source.
7. **Signal Switch Button**: Manual selection of the input signal.

Figure 2-2
LBC-H/V-T-WP Rear Panel

1. Firmware Update USB port
2. RS-232 control port (refer to RS232 protocol on pg 17)
3. Power input
4. HDBaseT CATX connection

3.0 SETUP

The BCI LBC HDBaseT Extender Series units are used in pairs. One LBC-H/V-T-WP transmitter unit is located at the near-end (source) and connected through a single category cable, to one of the LBC or LBH receivers like the LBC-HDBT-R receiver shown below and located at the far-end (sink) of the link. Figure 3-1 depicts a typical installation for the LBC-H/V-T-WP and LBC-HDBT-R.

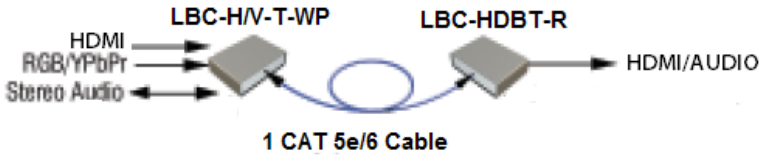

Figure 3-1
LBC-H/V-T-WP with LBC-HDBT-R Transmission Pair

3.1 Mounting

Before installing the units into your housing, make sure there is enough space to pull and connect both the electrical and category cables without stressing them beyond the manufacturer's limitations (also known as the minimum bend radius).

3.2 Cabling and Connectors

In order to setup the LBC-H/V-T-WP properly, make sure to observe the following instructions when installing the proper cables. The LBC-H/V-T-WP requires two parts to the cabling setup, the video signal and the transmission connections.

3.3 VGA/YPbPr Video Interface

The RGB/YPbPr video connection is the VGA (HD-15) plug connectors for video input port. Use the following instructions to properly connect your component video as illustrated in Figure 3-2. Connect the LBC-H/V-T-WP (Transmitter) unit's RGB/YPbPr video input port to the user's RGB/YPbPr video source with the appropriate VGA (HD-15) cables.

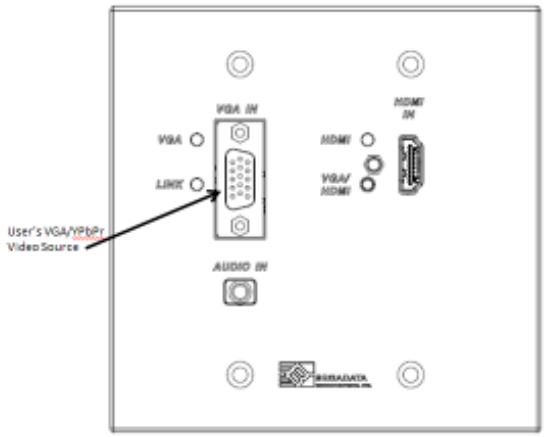

Figure 3-2
Connect User's VGA or YPbPr Video Source

3.4 HDMI Video Interface

The HDMI video connection is the HDMI plug connectors for the video input port. Use the following instructions to properly connect your video as illustrated in Figure 3-3. Connect the LBC-H/V-T-WP (Transmitter) unit's to HDMI video input port to the user's HDMI video source with the appropriate HDMI cables.

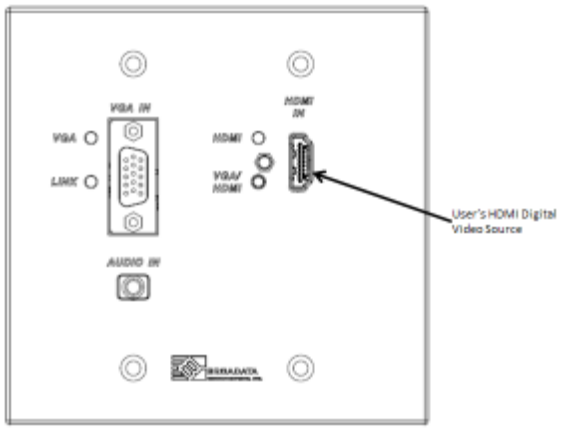

Figure 3-3
Connect User's HDMI Video Source

3.5 Audio Interface

The audio interface supports one stereo channel high fidelity analog, line-level audio signal connected to the LBC-H/V-T-WP unit. The following steps illustrate the installation procedures for audio devices.

To send audio signals, label and connect one stereo audio-jack cable to the "AUDIO" connector of the line level audio source. On the LBC-H/V-T-WP unit, connect the other end of the cables to the front panel stereo jack connector labeled "AUDIO IN" (see Figure 3.4).

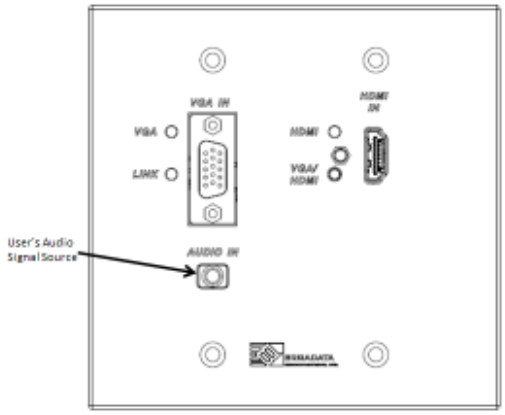

Figure 3-4
User's Analog/Digital Audio Source

3.6 Serial Data Interface

To transmit RS-232 data, connect data source to the terminal block shown in Figure 3-5.

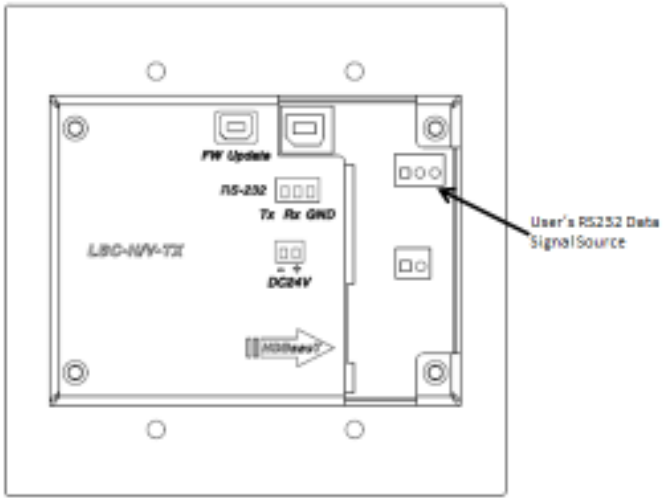

Figure 3-5
User's RS-232 Data Source

RS-232 Data
The LBC-H/V-T-WP transmits one channel of RS-232 data. Follow the procedures for installing data terminal devices.

1. Label and connect one serial data cable to the user's RS-232 device.
2. Connect the other end of this cable to the rear panel data terminal block connector on the LBC-H/V-T-WP (see Figure 3-5) per the pin out diagram in Figure 3-6.

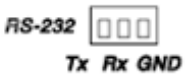

Figure 3-6
RS-232 Terminal Block Pin OUT

Note: Refer to Table 1 on page 17 for the RS-232 command protocol.

3.7 CAT-5e/6 Transmission Connection

Select an appropriate terminated shielded CAT 5e/6 cable. Each unit's RJ45 ports in the system are specified for use with RJ45 connectors. Follow the ensuing instructions on installing and connecting the HDBaseT links:

1. Ensure the power is off before proceeding with the CAT5e/6 cable installation.
2. Connect the cable from one unit to the other connecting the near end LBC-H/V-T-WP unit's RJ45 port and to the far end of the LBH-HDMI-AD-R (use any compatible LBC or LBH series receiver) unit's RJ45 RX port as illustrated in Figure 2-7.

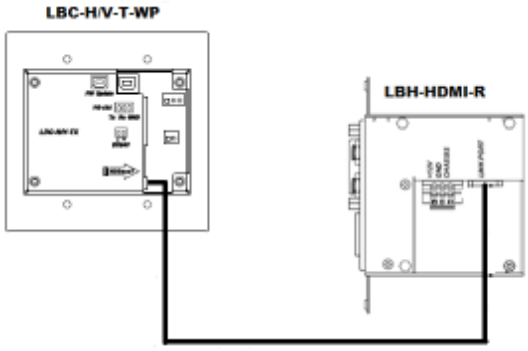

Figure 3-7
CAT-5e/6 Connection

4.0 DC POWER CONNECTION

Congratulations! You are now ready to power up the LBC-H/V-T-WP and set up your network connection. In order to make sure that you have a proper installation, please observe the following:

1. Your AC jack has power.
2. The 5VDC power supply is working.
3. Your electrical system has proper grounding (this ensures that your power supply does not suffer from voltage variations).
4. Power Surge Protection. This is optional, but highly recommended. A UPS system provides voltage regularity as well as prevents spikes from occurring, thus protecting your LBH-DVI from sensitive voltage conditions.

The LBC-H/V-T-WP derives power from an external 54VDC power supply or via PoH (Power over HDBaseT). This power supply is a wall mounted AC/DC adapter, 100-240 VAC, 50-60 Hz, at 1.0A. This power supply comes standard for the LBC-H/V-T-WP unless otherwise specified. To provide power to the LBC-H/V-T-WP, simply connect the power cord, already provided with the units, and connect it to the wall jack. (You will find one power cord per unit). Once the power cord has been connected to the wall jack, connect 24VDC to the unit and the unit should power up immediately. If you have any problems or concerns, regarding the installation, make sure that you have taken the proper steps to ensure a proper power connection. Otherwise, feel free to contact us for any questions you may have.

4.1 In-Wall Power/CAT-5e/6 Wiring Instruction

The in-wall power/CAT-5e/6 installation for the LBC-H/V-T-WP wall plate must confirm national and local electrical codes, e.g., UL junction boxes shall be used and DC power source shall not exceed product rated range (+24VDC @ 1A). Follow the following steps for power/CAT5e/6 installation:

1. Feed both CAT-5e/6 and power cables through the opening of the wall box, and secure the cables with cable clamps to provide strain relief.
2. Terminated CAT-5e/6 with RJ45 connector to be directly plugged into the RJ45 connector port of the LBC-H/V-T-WP unit.
3. Before connecting power wire to the LBC-H/V-T-WP unit, make sure power supply is off. Prepare the Positive (+24V) and chassis ground (CHASSIS to earth ground) tip of the power wire as shown in Figure 3-8 to be directly plugged into the captive screw +24VDC connector of the LBC-H/V-T-WP unit.
   Make sure the polarity of the connection is correct. Insulate any exposed wire shields to prevent short circuits.

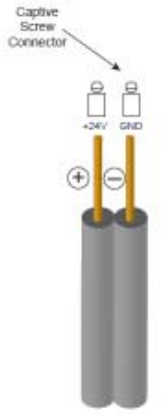

Figure 4-1
Power Connection

Note 1: During installation, the installer may need to connect the power supply output to an appropriate Listed NEC type cable before it is routed behind a wall. Simply routing the power supply output cable behind a wall will most likely not comply with applicable installation requirements. Unit should only be powered by a power source that is Listed (NEC) Class 2 or a Listed ITE Power Supply marked/rated as LPS or Limited Power Source.

Note 2: The installation shall be in accordance with the applicable provisions of the National Electrical Code ANSI/NFPA 70, Article 725 and the Canadian Electrical Code, Part 1, Section 16.

Note 3: The power supply shall not be permanently fixed to the building structure or similar structures.

Note 4: The power supply shall not be located within environmental air handling spaces or within the wall cavity.

Note 5: The power supply is to be located within the same vicinity as the A/V processing equipment in an ordinary location, Pollution Degree 2, secured to the equipment rack within the dedicated closet, podium or desk.

Command	Command String	Information	Example	Example String	Example Response
Route Command	&Ra<cr>	A=V or H; V mean VGA, H mean HDMI	Route VGA Input to HDBT Output	&RV<cr>	^RV<cr> OR No VGA Signal Input
Query Active Rourte	$R<cr>			$R<cr>	^RV<cr>
Baud Rate Setup Command	&Bab<cr>	a=baud rate=9600, 19200, 38400 b=bits,parity, stop=8N1, 8E1,801	Set RS232 Port Baud Rate to 96008N1	&B96008 N1<cr>	^B96008 N1<cr>
Query Baud Rate	$B<cr>		Response shows 38400 8N1	$B<cr>	^B384008 N1<cr>
Query Firmware	$FM<cr>		Query Processor firmware	$FM<cr>	^FM-1.0.0 <cr>

Table 1
RS-232 Protocol

5.0 MAINTENANCE AND TROUBLESHOOTING

5.1 Maintenance

There is no operator maintenance other then keeping the units clean. However, observe the following light indicators to make sure that the unit is working properly:

5.2 Troubleshooting

If the LBC-H/V-T-WP units do not operate properly after installation, check for possible cable breaks, loose connections, and incorrect cable connections. If problems persist that may be fiber related, contact BCI at 1-800-214-0222 for further assistance.

For electrical problems, perform the following troubleshooting procedures:

1. **If the POWER indicator is OFF, check for the following:**
   a. The line cord is plugged into the unit and your outlet has power.
2. **If the POWER indicator is ON, but the Link indicator is OFF, check for the following:**
   a. Make sure the appropriate cables are being used.
   b. Cable and cable connectors are not broken.
   c. For each unit, the transmit (TX) cable is connected to the other unit's receiver (RX).
3. **If the POWER indicator and Link indicator are ON, but the channels are not operating, then:**
   a. Check to see that the attached user equipment is turned on.
   b. Both ends of the link are connected to the corresponding equipment and to the same corresponding channel port.

c. Cable connections at both channels are securely fastened to each connector. Turn the power off, then back on to reset the link.

6.0 SPECIFICATIONS

Video

Resolution	Up to 4K2K and 1080p @ 60Hz or 1920x1200 @ 60Hz
Connector	HDMI Female Plug/ HD-15 VGA
Protocol	DDC/EDID/HDCP Compatible

Transmission

Cable Type	Single CAT 5e/6
Number of cables	1
Connector	RJ45
Max Distance	70m (230 ft)

Physical

Dimension (H x W x D)	4.56" x 4.5" x 1.55" Wall Plate
Power Level (max.)	+24VDC @ 1A
LED Indicator	Power/Link VGA/ HDMI
Operating Temperature	0 to +55oC
Humidity	5 to 95% RH, non-condensing

7.0 SERVICE PROCEDURE

7.1 Replacement Policy

Standard products found defective on arrival (DOA) will be replaced, based on availability, within 24 to 48 hours anywhere in the U.S. Please call Customer Service at **800-214-0222** for information.

7.2 Return/Repair Service

The LBC-H/V-T-WP System contains no user serviceable components. If you have a problem with your unit, please contact the Customer Service Department. To facilitate our return/repair processing please contact Broadata Communications, Inc. to obtain a Return Material Authorization (RMA). Please include the following information:

- Product model number
- Serial Number
- Complete description of problem
- Hardware installation description

Broadata Communications, Inc.
2545 West 237th Street, Suite K
Torrance, CA 90505
1-800-214-0222
(310) 530-1416
(310) 530-5958 (Facsimile)
e-mail: CustomerService@Broadatacom.com
Website: www.broadatacom.com

8.0 LIMITED WARRANTY

Broadata Communications, Inc. (BCI) warrants, for a period of one year from date of shipment, each product sold shall be free from defects in material and workmanship. BCI will correct, either by repair, or at BCI's election, by replacement, any said products that in our sole discretion prove to be defective and are returned to the manufacturing location within 30 days after such defect is ascertained. All warranties are limited to defects arising under normal use and do not include malfunctions or failure resulting from misuse, abuse, neglect, alterations, electrical power problems, usage not in accordance with product instructions, improper installation, or damage determined by BCI to have been caused by the Buyer or repair made by a third party. Limited warranties granted on products are to the initial customer end-user and are not transferable. OUR LIABILITY UNDER THIS WARRANTY SHALL IN ANY CASE BE LIMITED TO THE INVOICE VALUE OF THE PRODUCT SOLD AND BCI SHALL NOT BE LIABLE TO ANYONE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES ARISING FROM THE USE OF ITS PRODUCTS OR THE SALE THEREOF. We make NO WARRANTY AS TO THE MERCHANTABILITY OF ANY GOODS, OR THAT THEY ARE FIT FOR ANY PARTICULAR PURPOSE OR END APPLICATION NOR DO WE MAKE ANY WARRANTY, EXPRESSED OR IMPLIED OTHER THAN AS STATED ABOVE.

Broadata Communications, Inc.
2545 West 237th Street, Suite K
Torrance, CA 90505
1-800-214-0222
(310) 530-1416
(310) 530-5958 (Facsimile)
e-mail: CustomerService@Broadatacom.com
Website: www.broadatacom.com

60000-LBC-H/V-T-WP